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# **FIBER AND PROCESSING TESTS**

## **SURVEY OF LEADING COTTON VARIETIES**

CROP OF 1993



U. S. Department of Agriculture  
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FIBER AND PROCESSING TESTS  
SURVEY OF LEADING COTTON VARIETIES  
1993 COTTON CROP

INTRODUCTION

This report contains information on the fiber properties and spinning performance of cotton samples representing leading varieties commercially grown in the United States. The results of fiber and spinning tests on these samples provide data for studies of the relationships between fiber properties, processing performance and product quality, in reference to specific cotton varieties.

SAMPLING PROCEDURES

For this survey, a total of twenty-four upland and two American Pima bales representing leading cotton varieties were purchased. In each case, the owner certified that the bale was produced from a specific variety.

Two upland varieties were selected from the Southeastern Area of the United States, four varieties from the South Central Area, three from the Southwestern Area and three from the Western Area. In addition, one American Pima variety was selected from the Western Area. Two bales were obtained for each of the thirteen selected varieties.

Several sets of samples were taken from each bale for various fiber tests. Each set was composed of five samples taken at random across the "fanhead" of the bale. This means that each fiber statistic in this report, except for classer's color grade and classer's leaf grade, is the average of five readings. The classer's color grade and classer's leaf grade were based on a classer's sample of the bale and were assigned at the classing office.

A minimum of 150 pounds of cotton from each bale was processed for each spinning test.

PROCESSING

The 26 bales of cotton collected for this study were processed on modern textile processing equipment. The cotton was opened, blended and cleaned on Truetzchler equipment and carded on a Truetzchler Card at 70 pounds per hour. Drawing sliver was produced on a Reiter Breaker Drawing Frame (3 over 3) and a Saco Lowell Finisher Drawing Frame (3 over 4). Roving was produced on a Saco Lowell Long Draft Roving Frame (10 x 5, 1-Apron Type), and ring spun yarn was produced on a Saco Lowell Long Draft Spinning Frame (2-Apron Type). Rotor spun yarn was produced on a Schlafhorst Autocoro Spinning Frame.

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NOTE: Trade names are used solely to provide specific information. Mention of a trade name does not constitute a warranty or an endorsement of the product by the U.S. Department of Agriculture to the exclusion of other products not mentioned.

ACKNOWLEDGEMENT: Appreciation is expressed to C. K. Bragg and personnel of the Cotton Quality Research Station, ARS, U.S. Dept. of Agriculture, Clemson, SC for processing the cotton into yarn.



	CARGILL PAYMASTER HS 26		CARGILL PAYMASTER HS 200		CPCSD ACALA MAXXA		CPCSD ACALA ROYALE	
	SOUTHWEST		SOUTHWEST		FAR WEST		FAR WEST	
	Texas		Texas		San Joaquin Valley of California		San Joaquin Valley of California	
	(Lamesa Area)	(Lubbock Area)	(Abilene Area)	(Lubbock Area)	(Northern Area)	(Southern Area)	(Northern Area)	(Southern Area)
<b>CLASSIFICATION</b>								
Color Grade (code)	31	21	31	21	31	21	21	21
Leaf Grade (code)	2	3	4	2	3	3	3	3
HVI Staple (code)	33	32	35	36	37	37	36	37
<b>HVI - MCI</b>								
UHM (in)	1.04	1.00	1.08	1.11	1.15	1.16	1.12	1.14
Uniformity Index (%)	80.6	81.1	81.3	82.9	82.9	83.1	82.6	83.5
Strength (g/tex)	30.5	30.2	28.6	31.9	32.1	34.0	32.8	32.9
Elongation (%)	8.5	9.5	7.5	8.8	8.8	6.9	7.8	8.0
Micronaire (rdg)	3.8	4.5	3.9	4.4	4.3	4.2	4.2	4.3
Trash (% area)	0.26	0.24	0.50	0.18	0.30	0.34	0.38	0.40
Color Rd (%)	75.8	77.2	73.3	78.1	77.0	77.0	76.6	76.7
Color +b (units)	8.7	9.1	9.3	8.7	8.8	8.7	8.3	8.6
<b>STELOMETER</b>								
1/8" - Gage Strength (g/tex)*	28.4	27.3	25.6	26.8	30.8	30.4	32.4	29.0
Elongation (%)	6.5	6.5	6.4	6.8	5.5	5.3	6.1	6.0
<b>SUTER-WEBB LENGTH ARRAY</b>								
UQL (in)	1.11	1.05	1.20	1.21	1.27	1.24	1.23	1.25
Mean Length (in)	0.87	0.84	0.96	1.00	1.05	1.02	1.00	1.03
CV (%)	35.2	33.4	32.2	29.6	28.6	30.0	31.2	29.9
Short Fiber Content (%)	13.6	13.8	10.2	8.8	7.2	9.0	9.2	8.1
<b>IIC/SHIRLEY FMT</b>								
Fineness (mtex)	150.8	177.2	138.2	172.4	152.2	159.8	144.4	155.4
Maturity Ratio	0.956	1.013	1.006	1.030	0.977	1.006	1.123	1.070
<b>S. A. NON-LINT CONTENT</b>								
Visible Waste (%)	1.9	1.7	2.2	1.2	2.1	1.8	2.0	1.6
Total Waste (%)	3.0	3.0	3.1	2.1	3.0	2.5	2.8	2.3
<b>NEPS OF RAW COTTON</b>								
AFIS-N (neps/gram)	218	191	240	158	133	152	172	172
Raw Stock Neps (neps/100 sq. in.)	29	17	29	23	23	21	18	19
<b>SUGAR CONTENT (%)</b>	0.31	0.31	0.25	0.45	0.33	0.28	0.39	0.35

\*Stelometer results adjusted to Pressley level.

	CARGILL PAYMASTER HS 26						CARGILL PAYMASTER HS 200					
	SOUTHWEST						SOUTHWEST					
	Texas						Texas					
	(Lamesa Area)			(Lubbock Area)			(Abilene Area)			(Lubbock Area)		
	10s	22s	30s	10s	22s	30s	10s	22s	30s	10s	22s	30s
<b>OPENING &amp; CARDING WASTE (%)</b>	5.30	5.30	5.30	6.93	6.93	6.93	8.12	8.12	8.12	5.57	5.57	5.57
<b>YARN SKEIN STRENGTH TEST:</b>												
Yarn Number (Ne)	10.2	22.1	29.7	10.2	21.4	29.7	10.0	21.7	29.8	9.6	21.2	29.8
CV% of Yarn Number	1.3	1.3	2.0	1.8	0.9	1.0	1.2	2.0	1.9	1.5	1.8	1.2
Count-Strength-Product	2474	2130	1889	2352	1913	1645	2524	2200	2000	2274	1964	1775
CV% of CSP	3.8	5.4	4.1	4.6	6.7	5.4	3.2	3.6	2.5	2.7	5.3	4.2
Elongation (%)	7.6	6.8	6.6	7.2	7.0	6.1	7.5	6.9	6.4	7.9	7.0	6.7
<b>SINGLE-YARN STRENGTH TEST:</b>												
Tenacity (mN/tex)	134	126	116	128	113	99	141	122	120	140	126	106
CV% of Tenacity	6.5	10.5	12.1	7.5	13.5	10.8	6.4	9.8	10.1	6.8	10.9	11.8
Force (N)	7.89	3.37	2.27	7.55	3.04	1.95	8.34	3.27	2.36	8.26	3.39	2.08
Elongation (%)	6.64	6.92	6.21	6.51	6.17	5.82	7.57	7.01	6.15	7.93	6.94	6.18
CV% of Elongation	8.8	7.0	11.5	10.3	15.1	10.4	7.5	13.6	9.0	8.3	8.7	10.4
Specific Work to Rupture (cm*N)	2.16	0.93	0.59	2.05	0.79	0.49	2.54	0.86	0.58	2.47	0.95	0.54
CV% of Specific Work to Rupture	10.8	14.7	17.6	12.2	19.9	16.0	11.0	15.5	14.3	10.8	15.6	17.5
<b>USTER YARN EVENNESS TEST:</b>												
Non-Uniformity (CV%)	13.1	14.1	16.4	13.9	14.6	16.4	12.3	13.8	16.4	12.4	14.3	17.4
Thick Places/1,000 yd	52	51	114	75	65	135	15	22	129	32	39	188
Thin Places/1,000 yd	2	9	101	0	22	140	0	9	55	0	19	158
Neps/1,000 yd	30	16	25	17	17	25	1	1	20	6	12	33
<b>YARN APPEARANCE INDEX</b>	90	110	120	70	90	110	110	110	110	90	110	110

	<b>CARGILL PAYMASTER HS 26</b>						<b>CARGILL PAYMASTER HS 200</b>					
	<b>SOUTHWEST</b>						<b>SOUTHWEST</b>					
	<b>Texas</b>						<b>Texas</b>					
	<b>(Lamesa Area)</b>			<b>(Lubbock Area)</b>			<b>(Abilene Area)</b>			<b>(Lubbock Area)</b>		
	22s	36s	50s	22s	36s	50s	22s	36s	50s	22s	36s	50s
<b>OPENING &amp; CARDING WASTE (%)</b>	5.30	5.30	5.30	6.93	6.93	6.93	8.12	8.12	8.12	5.57	5.57	5.57
<b>YARN SKEIN STRENGTH TEST:</b>												
Yarn Number (Ne)	22.3	35.9	51.1	21.8	35.0	48.6	22.7	35.6	49.5	22.6	36.9	51.1
CV% of Yarn Number	1.6	1.3	1.9	1.7	1.7	1.9	2.5	1.1	1.5	2.5	1.6	1.9
Count-Strength-Product	2398	2154	1955	2377	2108	1752	2496	2344	2078	2452	2263	2105
CV% of CSP	4.2	3.5	4.8	3.7	5.2	4.6	4.3	3.9	4.1	3.6	5.2	4.7
Elongation (%)	6.2	5.3	4.8	6.3	5.8	5.3	5.9	5.5	5.0	6.5	5.7	5.5
<b>SINGLE-YARN STRENGTH TEST:</b>												
Tenacity (mN/tex)	161	133	127	153	136	128	156	143	138	149	138	130
CV% of Tenacity	12.4	14.2	15.6	11.5	13.2	16.9	12.7	13.3	15.3	9.6	11.5	13.6
Force (N)	4.32	2.18	1.50	4.11	2.23	1.51	4.20	2.35	1.63	3.99	2.26	1.53
Elongation (%)	6.56	5.29	5.29	6.76	5.85	5.43	6.28	5.53	5.21	6.84	6.00	5.93
CV% of Elongation	10.4	15.2	12.4	11.6	11.4	13.8	10.5	11.3	11.0	12.5	11.9	10.8
Specific Work to Rupture (cm*N)	1.13	0.53	0.35	1.10	0.55	0.35	1.02	0.56	0.37	1.09	0.57	0.38
CV% of Specific Work to Rupture	17.2	21.6	19.9	16.4	17.5	23.1	16.6	18.2	20.1	14.2	17.3	18.9
<b>USTER YARN EVENNESS TEST:</b>												
Non-Uniformity (CV%)	20.0	24.8	27.3	21.9	24.6	27.7	20.9	24.8	27.2	18.5	22.7	24.4
Thick Places/1,000 yd	1018	2232	2915	1198	2185	3009	1232	2384	3031	704	1647	2169
Thin Places/1,000 yd	179	991	1608	323	933	1788	188	895	1364	91	550	816
Neps/1,000 yd	90	497	1041	184	519	1003	163	818	1337	194	530	815
<b>YARN APPEARANCE INDEX</b>	100	80	70	100	80	70	90	80	60	90	80	70



	CPCSD ACALA MAXXA						CPCSD ACALA ROYALE					
	FAR WEST						FAR WEST					
	San Joaquin Valley of California						San Joaquin Valley of California					
	(Northern Area)			(Southern Area)			(Northern Area) *			(Southern Area)		
	10s	22s	30s	10s	22s	30s	10s	22s	30s	10s	22s	30s
<b>OPENING &amp; CARDING WASTE (%)</b>	7.64	7.64	7.64	6.70	6.70	6.70	5.33	5.33	5.33	7.27	7.27	7.27
	9.4	21.3	28.5	9.9	21.5	28.9	9.8	21.5	28.7	9.9	21.1	29.4
	2.8	1.7	2.0	1.9	1.6	2.4	1.2	1.8	2.4	1.7	2.0	2.2
	2893	2471	2265	2730	2252	2092	2753	2360	2190	2670	2428	2094
	2.2	2.3	4.5	3.3	4.2	3.8	4.4	5.8	3.2	6.1	3.2	9.2
<b>YARN SKEIN STRENGTH TEST:</b> Yarn Number (Ne) CV% of Yarn Number Count-Strength-Product CV% of CSP Elongation (%)	7.6	6.6	6.4	7.4	6.5	6.4	7.5	7.4	7.0	7.3	7.0	6.1
	157	144	134	152	133	128	170	139	132	142	139	132
	7.3	8.6	12.8	8.6	12.0	10.8	7.9	8.7	11.0	8.6	10.1	12.0
	9.27	3.86	2.64	8.99	3.58	2.52	10.86	3.74	2.59	8.37	3.74	2.60
	7.71	6.31	5.78	7.04	6.13	5.91	7.20	6.63	6.26	6.35	6.78	6.58
<b>SINGLE-YARN STRENGTH TEST:</b> Tenacity (mN/tex) CV% of Tenacity Force (N) Elongation (%) CV% of Elongation Specific Work to Rupture (cm*N) CV% of Specific Work to Rupture	10.9	8.9	10.4	8.5	8.2	9.1	7.9	6.9	7.7	7.6	8.4	9.0
	2.57	0.96	0.64	2.39	0.91	0.63	2.64	0.99	0.66	2.13	0.98	0.69
	11.9	12.1	17.1	12.6	15.2	15.2	12.2	12.4	14.8	12.1	13.7	15.4
	11.8	13.7	17.1	12.7	14.4	17.1	12.7	13.9	15.9	12.6	13.5	15.9
	20	35	208	52	49	201	31	50	105	31	40	106
<b>USTER YARN EVENNESS TEST:</b> Non-Uniformity (CV%) Thick Places/1,000 yd Thin Places/1,000 yd Neps/1,000 yd	0	8	85	0	7	100	0	9	47	0	9	57
	5	12	54	18	10	58	13	34	69	7	14	58
	120	120	120	120	130	110	80	100	110	120	110	100
<b>YARN APPEARANCE INDEX</b>												

\* Cotton stuck to processing rolls (roving frame).



	CPCSD ACALA MAXXA						CPCSD ACALA ROYALE					
	FAR WEST						FAR WEST					
	San Joaquin Valley of California						San Joaquin Valley of California					
	(Northern Area)						(Northern Area) *					
	22s	36s	50s	22s	36s	50s	22s	36s	50s	22s	36s	50s
<b>OPENING &amp; CARDING WASTE (%)</b>	7.64	7.64	7.64	6.70	6.70	6.70	5.33	5.33	5.33	7.27	7.27	7.27
<b>YARN SKEIN STRENGTH TEST:</b>												
Yarn Number (Ne)	22.6	37.5	50.2	23.5	36.7	49.4	22.3	36.6	50.9	20.7	37.6	50.1
CV% of Yarn Number	1.9	1.5	2.3	2.3	1.6	1.3	3.3	1.6	1.6	3.1	1.3	1.5
Count-Strength-Product	3100	2966	2876	2922	2676	2666	2960	2785	2601	3020	2770	2675
CV% of CSP	6.5	3.6	5.1	3.7	4.0	4.3	5.2	4.2	5.3	3.4	4.0	4.8
Elongation (%)	6.0	5.7	5.5	5.7	5.2	5.0	6.3	5.6	5.0	6.5	5.5	5.3
<b>SINGLE-YARN STRENGTH TEST:</b>												
Tenacity (mN/tex)	188	173	166	166	160	157	182	165	156	210	168	162
CV% of Tenacity	10.8	11.7	14.9	12.6	11.8	13.4	11.1	14.6	11.9	10.2	13.5	14.4
Force (N)	5.05	2.84	1.96	4.46	2.63	1.85	4.88	2.71	1.85	5.65	2.76	1.91
Elongation (%)	6.26	5.46	5.02	6.22	5.05	5.28	6.43	5.64	5.41	7.15	5.62	5.65
CV% of Elongation	9.8	11.2	14.0	7.9	12.2	9.1	9.7	11.3	11.2	8.8	11.8	10.9
Specific Work to Rupture (cm*N)	1.22	0.63	0.42	1.07	0.57	0.43	1.20	0.62	0.42	1.46	0.64	0.44
CV% of Specific Work to Rupture	14.6	16.3	19.4	15.1	17.0	18.0	15.0	19.2	16.3	14.8	18.5	19.4
<b>USTER YARN EVENNESS TEST:</b>												
Non-Uniformity (CV%)	17.6	21.3	22.9	17.9	21.5	23.9	18.8	21.0	23.2	17.2	22.0	22.6
Thick Places/1,000 yd	613	1388	1811	631	1487	1948	877	1388	1895	586	1554	1694
Thin Places/1,000 yd	42	264	502	60	364	566	118	247	497	33	459	437
Neps/1,000 yd	263	633	881	278	532	796	634	882	1135	332	734	852
<b>YARN APPEARANCE INDEX</b>	110	90	70	110	90	70	100	70	60	100	100	70

\* Cotton stuck to processing rolls (roving frame).

	<b>CPCSD ACALA MAXXA</b>						<b>CPCSD ACALA ROYALE</b>					
	<b>FAR WEST</b>						<b>FAR WEST</b>					
	San Joaquin Valley of California						San Joaquin Valley of California					
	(Northern Area)						(Northern Area)					
	22s	36s	50s	22s	36s	50s	22s	36s	50s	22s	36s	50s
<b>OPENING &amp; CARDING WASTE (%)</b>	7.64	7.64	7.64	6.70	6.70	6.70	5.33	5.33	5.33	7.27	7.27	7.27
<b>COMBING WASTE(%)</b>	19.30	19.30	19.30	20.24	20.24	20.24	19.63	19.63	19.63	20.42	20.42	20.42
<b>YARN SKEIN STRENGTH TEST:</b>												
Yarn Number (Ne)	22.4	37.5	50.4	22.4	38.0	51.3	22.6	37.1	49.5	23.6	37.0	50.7
CV% of Yarn Number	2.4	2.4	2.4	1.7	2.0	2.2	2.1	2.0	1.8	3.1	1.7	2.3
Count-Strength-Product	3539	3270	3110	3376	3051	2938	3354	3218	2934	3218	3116	2972
CV% of CSP	3.6	3.5	2.9	2.6	6.8	5.3	3.6	3.8	3.0	4.1	3.3	4.6
Elongation (%)	7.0	5.5	5.4	6.3	5.0	5.0	6.5	6.0	5.5	6.1	6.0	5.5
<b>SINGLE-YARN STRENGTH TEST:</b>												
Tenacity (mN/tex)	201	182	188	201	178	174	195	185	180	186	182	179
CV% of Tenacity	10.0	10.3	13.2	9.4	9.4	14.5	8.7	11.4	12.1	14.6	11.0	13.0
Force (N)	5.40	2.99	2.22	5.40	2.93	2.05	5.24	3.03	2.12	4.99	2.99	2.12
Elongation (%)	6.63	5.73	5.54	6.33	5.25	5.19	6.66	6.38	5.80	6.63	6.02	5.46
CV% of Elongation	7.7	7.7	10.2	11.4	12.2	17.1	9.3	9.8	11.0	11.0	10.6	13.4
Specific Work to Rupture (cm*N)	1.40	0.67	0.50	1.29	0.65	0.45	1.31	0.77	0.49	1.25	0.72	0.48
CV% of Specific Work to Rupture	12.4	13.4	17.1	13.8	13.4	21.4	13.1	15.2	16.3	19.0	14.7	18.8
<b>USTER YARN EVENNESS TEST:</b>												
Non-Uniformity (CV%)	13.0	16.2	17.1	13.4	16.2	17.2	12.8	15.7	16.7	13.7	15.9	16.6
Thick Places/1,000 yd	48	232	347	59	224	353	36	190	306	59	230	294
Thin Places/1,000 yd	3	65	110	4	56	108	6	39	73	25	73	70
Neps/1,000 yd	24	101	157	24	72	131	33	118	180	38	103	161
<b>YARN APPEARANCE INDEX</b>	130	120	110	130	120	110	130	120	120	130	110	100

\* Cotton stuck to processing rolls (comber).

	DELTAPINE ACALA 90			DELTAPINE 20			DELTAPINE 50			
	SOUTHEAST			SOUTH CENTRAL			SOUTH CENTRAL		SOUTHWEST	
	Alabama			Mississippi			Mississippi		Texas	
	Georgia			Tennessee					(Corpus Area) (Harlingen Area)	
<b>CLASSIFICATION</b>										
Color Grade (code)	31	41		31	31		31	41	31	
Leaf Grade (code)	2	3		2	3		1	4	3	
HVI Staple (code)	35	36		36	35		36	36	36	
<b>HVI - MCI</b>										
UHM (in)	1.09	1.12		1.08	1.08		1.12	1.12	1.12	
Uniformity Index (%)	81.9	82.1		81.9	81.9		81.4	81.5	81.5	
Strength (g/tex)	31.9	32.0		29.6	29.6		28.1	28.4	28.4	
Elongation (%)	6.9	6.6		8.9	8.7		7.5	7.3	7.3	
Micronaire (rdg)	4.5	4.6		3.9	4.1		4.4	4.4	4.1	
Trash (% area)	0.36	0.28		0.32	0.38		0.08	0.48	0.28	
Color Rd (%)	74.3	74.1		75.0	75.7		75.5	72.4	72.4	
Color +b (units)	8.4	7.9		8.5	8.6		8.2	8.1	8.4	
<b>STELOMETER</b>										
1/8" - Gage Strength (g/tex)*	27.3	26.0		25.5	23.5		24.2	24.2	24.4	
Elongation (%)	5.9	5.4		6.8	6.8		6.2	5.7	6.4	
<b>SUTER-WEBB LENGTH ARRAY</b>										
UQL (in)	1.14	1.21		1.18	1.20		1.23	1.22	1.24	
Mean Length (in)	0.91	0.98		0.95	0.96		0.97	0.97	1.00	
CV (%)	32.8	32.0		31.8	32.6		34.4	33.1	32.4	
Short Fiber Content (%)	11.6	10.2		10.3	11.5		12.0	11.4	10.5	
<b>IIC/SHIRLEY FMT</b>										
Fineness (mtex)	158.2	175.6		158.2	170.0		169.8	161.8	163.8	
Maturity Ratio	1.127	1.089		0.956	0.956		1.037	1.068	0.983	
<b>S. A. NON-LINT CONTENT</b>										
Visible Waste (%)	1.4	1.6		1.3	1.5		1.0	2.4	1.9	
Total Waste (%)	2.5	2.6		2.3	2.6		1.8	3.5	2.8	
<b>NEPS OF RAW COTTON</b>										
AFIS-N (neps/gram)	152	127		205	177		172	143	157	
Raw Stock Neps (neps/100 sq. in.)	20	16		28	22		23	16	20	
<b>SUGAR CONTENT (%)</b>	0.11	0.18		0.19	0.22		0.22	0.26	0.43	

\*Stelometer results adjusted to Pressley level.



	<b>DELTAPINE ACALA 90</b>						<b>DELTAPINE 20</b>					
	<b>SOUTH EAST</b>						<b>SOUTH CENTRAL</b>					
	<b>Alabama</b>			<b>Georgia</b>			<b>Mississippi</b>			<b>Tennessee</b>		
	10s	22s	30s	10s	22s	30s	10s	22s	30s	10s	22s	30s
<b>OPENING &amp; CARDING WASTE (%)</b>	4.81	4.81	4.81	7.46	7.46	7.46	4.34	4.34	4.34	7.18	7.18	7.18
<b>YARN SKEIN STRENGTH TEST:</b>												
Yarn Number (Ne)	9.4	20.7	29.2	9.8	20.9	30.0	9.8	20.7	29.5	9.7	21.0	28.3
CV% of Yarn Number	0.9	2.2	2.3	3.6	2.4	2.3	1.1	2.0	2.4	3.1	1.7	2.5
Count-Strength-Product	2289	1952	1704	2406	2129	1838	2277	1938	1726	2261	1913	1754
CV% of CSP	3.9	3.7	3.3	4.7	4.2	4.1	4.6	3.7	3.4	2.6	4.8	3.2
Elongation (%)	6.9	6.1	5.5	6.5	6.0	5.0	8.2	7.3	7.0	7.4	7.0	6.8
<b>SINGLE-YARN STRENGTH TEST:</b>												
Tenacity (mN/tex)	138	116	113	141	129	110	133	118	104	133	120	116
CV% of Tenacity	9.1	12.8	14.8	8.0	12.3	13.1	8.3	10.1	14.6	7.0	10.3	10.3
Force (N)	8.18	3.10	2.23	8.33	3.47	2.16	7.83	3.17	2.04	7.83	3.23	2.29
Elongation (%)	6.23	6.35	5.63	6.55	5.94	5.33	7.72	6.50	6.07	7.29	7.15	6.61
CV% of Elongation	7.6	11.8	9.1	7.0	9.0	10.4	14.9	13.4	17.1	8.5	8.7	12.6
Specific Work to Rupture (cm*N)	2.08	0.83	0.53	2.09	0.87	0.51	2.43	0.88	0.54	2.34	0.94	0.64
CV% of Specific Work to Rupture	13.6	15.0	18.3	10.1	16.8	16.5	15.6	17.3	21.1	10.9	14.9	19.3
<b>USTER YARN EVENNESS TEST:</b>												
Non-Uniformity (CV%)	13.4	15.3	18.4	12.6	15.8	17.4	13.4	14.7	17.2	12.6	14.0	17.0
Thick Places/1,000 yd	41	80	253	36	147	213	87	72	204	56	46	169
Thin Places/1,000 yd	0	21	161	0	19	184	0	9	135	0	11	136
Neps/1,000 yd	4	11	39	2	41	41	54	22	47	37	15	32
<b>YARN APPEARANCE INDEX</b>	110	100	120	80	110	110	90	110	100	110	110	100



	DELTAPINE ACALA 90						DELTAPINE 20					
	SOUTH EAST						SOUTH CENTRAL					
	Alabama			Georgia			Mississippi			Tennessee		
	22s	36s	50s	22s	36s	50s	22s	36s	50s	22s	36s	50s
	4.81	4.81	4.81	7.46	7.46	7.46	4.34	4.34	4.34	7.18	7.18	7.18
OPENING & CARDING WASTE (%)												
YARN SKEIN STRENGTH TEST:												
Yarn Number (Ne)												
CV% of Yarn Number												
Count-Strength-Product												
CV% of CSP												
Elongation (%)												
SINGLE-YARN STRENGTH TEST:												
Tenacity (mN/tex)												
CV% of Tenacity												
Force (N)												
Elongation (%)												
CV% of Elongation												
Specific Work to Rupture (cm*N)												
CV% of Specific Work to Rupture												
USTER YARN EVENNESS TEST:												
Non-Uniformity (CV%)												
Thick Places/1,000 yd												
Thin Places/1,000 yd												
Neps/1,000 yd												
YARN APPEARANCE INDEX												

<b>DELTAPINE 50</b>													
<b>SOUTH CENTRAL</b>							<b>SOUTHWEST</b>						
<b>Mississippi</b>				<b>Missouri</b>			<b>Texas</b>						
10s	22s	30s	10s	22s	30s	10s	<b>(Corpus Area)</b>			<b>(Harlingen Area)</b>			
							10s	22s	30s	10s	22s	30s	
<b>OPENING &amp; CARDING WASTE (%)</b>													
6.99	6.99	6.99	6.68	6.68	6.68	6.70	6.70	6.70	6.70	7.35	7.35	7.35	7.35
<b>YARN SKEIN STRENGTH TEST:</b>													
Yarn Number (Ne)	22.0	29.4	9.5	21.8	29.3	9.8	21.4	29.6	9.8	21.9	29.9	29.9	29.9
CV% of Yarn Number	1.8	2.1	1.4	1.7	2.4	1.5	2.0	1.5	1.7	2.3	2.3	2.3	2.3
Count-Strength-Product	1941	1734	2296	1951	1791	2231	1654	1508	2203	1850	1667	1667	1667
CV% of CSP	4.1	3.3	3.5	2.7	3.3	4.3	7.1	4.7	3.5	3.8	3.7	3.7	3.7
Elongation (%)	6.7	6.5	7.9	7.0	6.4	6.7	6.3	5.0	7.7	7.2	6.5	6.5	6.5
<b>SINGLE-YARN STRENGTH TEST:</b>													
Tenacity (mN/tex)	130	117	144	112	108	130	101	93	128	108	104	104	104
CV% of Tenacity	7.8	10.4	8.0	10.0	12.5	8.5	12.1	15.1	7.8	9.1	11.9	11.9	11.9
Force (N)	7.69	3.15	1.82	3.01	2.12	7.69	2.89	1.83	7.59	2.90	2.05	2.05	2.05
Elongation (%)	7.58	5.95	5.43	6.86	6.18	6.83	6.42	5.36	7.69	7.08	6.76	6.76	6.76
CV% of Elongation	11.8	13.9	8.5	11.0	10.5	8.8	10.8	11.5	7.8	7.7	12.0	12.0	12.0
Specific Work to Rupture (cm*N)	2.17	0.81	2.43	0.83	0.55	2.10	0.77	0.43	2.30	0.84	0.58	0.58	0.58
CV% of Specific Work to Rupture	12.4	16.7	12.4	15.4	18.6	12.2	15.8	20.0	13.7	13.9	18.1	18.1	18.1
<b>USTER YARN EVENNESS TEST:</b>													
Non-Uniformity (CV%)	13.1	14.8	12.4	14.1	16.6	12.7	15.5	17.4	13.1	14.4	17.2	17.2	17.2
Thick Places/1,000 yd	44	78	28	37	155	31	103	194	102	71	227	227	227
Thin Places/1,000 yd	0	19	0	15	92	1	45	198	2	24	151	151	151
Neps/1,000 yd	3	9	1	10	31	21	32	42	76	27	38	38	38
<b>YARN APPEARANCE INDEX</b>													
	90	110	110	110	110	90	120	110	90	110	110	110	110

DELTAPINE 50														
SOUTH CENTRAL							SOUTHWEST							
Mississippi				Missouri			Texas							
							(Corpus Area)					(Harlingen Area)		
22s	36s	50s	22s	36s	50s	22s	36s	50s	22s	36s	50s	22s	36s	50s
OPENING & CARDING WASTE (%)														
YARN SKEIN STRENGTH TEST:														
Yarn Number (Ne)														
CV% of Yarn Number														
Count-Strength-Product														
CV% of CSP														
Elongation (%)														
SINGLE-YARN STRENGTH TEST:														
Tenacity (mN/tex)														
CV% of Tenacity														
Force (N)														
Elongation (%)														
CV% of Elongation														
Specific Work to Rupture (cm*N)														
CV% of Specific Work to Rupture														
USTER YARN EVENNESS TEST:														
Non-Uniformity (CV%)														
Thick Places/1,000 yd														
Thin Places/1,000 yd														
Neps/1,000 yd														
YARN APPEARANCE INDEX														



Fiber and Processing Tests of Leading Cotton Varieties - 1993 Cotton Crop - Fiber Properties.

	DELTAPINE 51			DELTAPINE 5415						STONEVILLE 453		
	SOUTH CENTRAL			SOUTHEAST			FAR WEST			SOUTH CENTRAL		
	Mississippi			South Carolina			Georgia			Missouri		
	Tennessee			California			Tennessee			Tennessee		
<b>CLASSIFICATION</b>	31	31		41	41		31	31		41	31	
Color Grade (code)	2	3		2	4		2	2		3	4	
Leaf Grade (code)	36	36		36	36		37	37		35	37	
HVI Staple (code)												
<b>HVI - MCI</b>												
UHM (in)	1.11	1.13		1.13	1.11		1.15	1.15		1.09	1.14	
Uniformity Index (%)	82.8	82.5		81.0	81.5		81.9	81.8		81.3	82.2	
Strength (g/tex)	28.8	30.5		31.2	30.2		32.1	32.1		27.7	30.3	
Elongation (%)	8.6	7.2		8.2	8.5		8.3	8.7		7.5	7.3	
Micronaire (rdg)	4.6	4.7		4.1	4.7		4.3	4.3		4.2	4.5	
Trash (% area)	0.30	0.38		0.30	0.40		0.12	0.20		0.40	0.36	
Color Rd (%)	75.5	73.6		74.7	72.2		78.6	73.4		69.3	74.8	
Color +b (units)	8.8	8.4		7.7	8.3		8.3	9.7		8.8	8.7	
<b>STELOMETER</b>												
1/8" - Gage Strength (g/tex)*	24.4	27.4		25.5	25.0		25.4	27.5		25.6	25.6	
Elongation (%)	6.8	5.8		6.7	6.6		6.6	6.3		5.9	5.7	
<b>SUTER-WEBB LENGTH ARRAY</b>												
UQL (in)	1.23	1.24		1.19	1.19		1.28	1.28		1.21	1.28	
Mean Length (in)	1.01	0.97		0.93	0.92		1.01	1.02		0.97	1.04	
CV (%)	30.2	34.2		36.0	36.7		35.0	33.6		32.5	31.2	
Short Fiber Content (%)	8.8	12.0		13.8	14.6		12.0	11.4		11.0	8.8	
<b>IIC/SHIRLEY FMT</b>												
Fineness (mtex)	189.6	179.6		166.0	194.0		172.2	179.4		162.8	179.2	
Maturity Ratio	1.017	1.043		0.972	0.997		1.016	0.922		1.025	1.023	
<b>S. A. NON-LINT CONTENT</b>												
Visible Waste (%)	1.0	2.3		1.9	1.6		1.0	1.8		1.5	1.7	
Total Waste (%)	1.9	3.3		3.0	2.7		2.3	3.1		2.5	2.7	
<b>NEPS OF RAW COTTON</b>												
AFIS-N (neps/gram)	153	127		195	162		179	181		195	165	
Raw Stock Neps (neps/100 sq. in.)	16	16		19	20		27	26		23	24	
<b>SUGAR CONTENT (%)</b>	0.20	0.16		0.12	0.15		0.28	0.82		0.14	0.18	

\*Stelometer results adjusted to Pressley level.



	<b>DELTAPINE 51</b>						<b>STONEVILLE 453</b>					
	<b>SOUTH CENTRAL</b>						<b>SOUTH CENTRAL</b>					
	<b>Mississippi</b>			<b>Tennessee</b>			<b>Missouri</b>			<b>Tennessee</b>		
	10s	22s	30s	10s	22s	30s	10s	22s	30s	10s	22s	30s
<b>OPENING &amp; CARDING WASTE (%)</b>	6.50	6.50	6.50	7.77	7.77	7.77	4.73	4.73	4.73	7.12	7.12	7.12
<b>YARN SKEIN STRENGTH TEST:</b>												
Yarn Number (Ne)	9.8	20.7	28.1	9.6	21.0	29.7	9.8	22.2	29.9	9.7	21.0	29.0
CV% of Yarn Number	2.0	2.3	2.1	1.8	2.3	2.4	1.9	2.7	2.5	1.7	1.9	2.5
Count-Strength-Product	2251	1929	1680	2312	2038	1788	2190	1783	1607	2222	1861	1647
CV% of CSP	3.8	3.8	3.3	2.5	3.7	4.6	2.7	4.5	4.5	3.4	3.9	5.7
Elongation (%)	7.9	7.4	6.0	6.7	6.5	6.0	6.8	6.4	6.3	6.6	6.4	6.1
<b>SINGLE-YARN STRENGTH TEST:</b>												
Tenacity (mN/tex)	129	120	113	143	120	113	124	108	98	128	115	103
CV% of Tenacity	7.6	11.5	12.9	7.7	10.4	14.4	7.3	10.0	11.3	8.3	9.9	13.1
Force (N)	7.60	3.22	2.22	8.47	3.23	2.23	7.34	2.91	1.92	7.54	3.08	2.02
Elongation (%)	8.13	6.60	6.11	7.31	5.85	5.74	6.42	6.15	5.96	6.24	5.62	5.46
CV% of Elongation	10.5	10.9	14.6	6.7	10.4	11.9	10.3	12.6	10.6	8.4	10.8	11.7
Specific Work to Rupture (cm*N)	2.34	0.90	0.61	2.38	0.84	0.55	1.93	0.76	0.49	1.97	0.76	0.49
CV% of Specific Work to Rupture	13.3	16.8	18.9	12.3	15.4	20.0	12.6	16.4	12.6	13.0	15.2	19.4
<b>USTER YARN EVENNESS TEST:</b>												
Non-Uniformity (CV%)	13.3	14.7	17.8	12.6	14.7	16.9	13.2	15.2	17.5	13.3	15.3	17.3
Thick Places/1,000 yd	61	86	249	20	70	171	58	85	189	64	99	209
Thin Places/1,000 yd	1	24	171	0	12	120	1	33	153	1	40	149
Neps/1,000 yd	13	16	84	3	19	31	19	12	30	35	20	38
<b>YARN APPEARANCE INDEX</b>	100	110	110	70	110	120	90	110	120	70	110	110

	DELTAPINE 51						STONEVILLE 453					
	SOUTH CENTRAL						SOUTH CENTRAL					
	Mississippi			Tennessee			Missouri			Tennessee		
	22s	36s	50s	22s	36s	50s	22s	36s	50s	22s	36s	50s
<b>OPENING &amp; CARDING WASTE (%)</b>	6.50	6.50	6.50	7.77	7.77	7.77	4.73	4.73	4.73	7.12	7.12	7.12
<b>YARN SKEIN STRENGTH TEST:</b>												
Yarn Number (Ne)	23.0	36.4	49.5	22.5	36.2	49.6	22.3	36.3	51.0	21.5	35.2	50.0
CV% of Yarn Number	1.7	1.1	1.3	1.4	1.0	1.4	1.1	1.0	1.9	1.9	1.4	1.4
Count-Strength-Product	2257	2062	1941	2368	2147	1873	2196	1937	1752	2333	2064	1950
CV% of CSP	5.0	4.7	4.1	3.6	5.0	4.1	3.0	4.5	7.1	4.8	4.3	5.9
Elongation (%)	6.6	5.8	5.5	6.0	5.4	5.0	5.6	5.2	4.8	5.4	5.0	4.7
<b>SINGLE-YARN STRENGTH TEST:</b>												
Tenacity (mN/tex)	136	125	124	140	130	120	141	126	108	151	132	124
CV% of Tenacity	11.8	11.8	14.0	9.9	15.0	18.6	11.2	15.2	18.8	12.5	13.1	15.7
Force (N)	3.66	2.05	1.46	3.76	2.13	1.42	3.78	2.06	1.28	4.05	2.17	1.46
Elongation (%)	6.37	5.56	5.41	5.80	5.39	4.83	6.29	5.47	4.73	6.78	5.64	5.01
CV% of Elongation	16.1	12.6	11.9	13.9	12.0	13.6	10.5	13.1	15.1	9.9	11.0	14.5
Specific Work to Rupture (cm*N)	0.95	0.50	0.35	0.99	0.49	0.31	0.97	0.48	0.28	1.08	0.52	0.32
CV% of Specific Work to Rupture	19.5	18.7	20.4	15.7	21.5	25.4	15.9	21.8	26.0	17.6	18.8	21.2
<b>USTER YARN EVENNESS TEST:</b>												
Non-Uniformity (CV%)	20.4	24.9	25.6	20.7	25.6	27.8	20.5	25.4	27.5	19.7	24.3	26.1
Thick Places/1,000 yd	1158	2358	2479	1289	2634	3186	1201	2526	2999	1019	2217	2680
Thin Places/1,000 yd	239	1007	1176	203	1116	1522	225	1139	1600	173	818	1211
Neps/1,000 yd	237	889	1114	217	1099	1274	234	877	1298	202	835	1179
<b>YARN APPEARANCE INDEX</b>	110	90	70	100	80	60	100	80	60	100	80	60

<b>DELTAPINE 5415</b>												
SOUTHEAST						FAR WEST						
South Carolina			Georgia			Arizona *			California *			
10s	22s	30s	10s	22s	30s	10s	22s	30s	10s	22s	30s	30s
7.04	7.04	7.04	7.97	7.97	7.97	7.99	7.99	7.99	7.62	7.62	7.62	7.62
9.7	21.3	29.8	9.7	21.1	29.3	9.7	21.5	29.0	9.7	21.0	28.7	
2.4	2.0	1.7	2.6	2.3	1.8	1.4	2.3	2.5	2.9	1.8	2.0	
2393	2048	1813	2098	1769	1579	2213	1794	1630	2310	1917	1655	
3.3	4.0	3.6	4.5	4.3	4.7	3.5	5.9	3.4	3.7	6.2	4.7	
7.4	6.9	6.0	6.9	5.8	5.7	6.7	6.3	5.8	7.0	6.3	6.5	
137	124	111	127	110	98	133	114	105	136	120	112	
7.5	11.2	13.1	7.6	10.6	12.7	7.3	9.3	12.1	7.2	9.7	11.7	
8.08	3.33	2.19	7.51	2.96	1.94	7.84	3.06	2.07	8.05	3.22	2.19	
7.17	6.92	6.55	7.05	6.16	5.73	7.08	6.46	5.72	7.00	7.06	6.22	
8.8	8.3	9.9	17.4	10.2	14.2	9.1	11.6	10.7	8.2	7.9	11.0	
2.34	0.95	0.60	2.11	0.77	0.50	2.20	0.82	0.52	2.22	0.89	0.56	
12.6	15.7	17.7	15.5	16.4	20.6	12.4	15.5	17.6	11.7	14.0	17.4	
12.4	14.1	17.1	13.8	15.0	17.5	12.8	14.5	16.6	12.3	15.6	15.9	
24	43	199	88	94	193	34	45	132	29	68	113	
0	10	131	0	26	142	1	11	119	0	30	76	
3	15	61	68	24	44	12	10	21	10	21	45	
90	110	100	110	90	120	90	130	100	100	110	110	
<b>YARN APPEARANCE INDEX</b>												

**OPENING & CARDING WASTE (%)****YARN SKEIN STRENGTH TEST:**

Yarn Number (Ne)

CV% of Yarn Number

Count-Strength-Product

CV% of CSP

Elongation (%)

**SINGLE-YARN STRENGTH TEST:**

Tenacity (mN/tex)

CV% of Tenacity

Force (N)

Elongation (%)

CV% of Elongation

Specific Work to Rupture (cm\*N)

CV% of Specific Work to Rupture

**USTER YARN EVENNESS TEST:**

Non-Uniformity (CV%)

Thick Places/1,000 yd

Thin Places/1,000 yd

Neps/1,000 yd

\* Cotton stuck to processing rolls ( card and roving).



<b>DELTAPINE 5415</b>												
<b>SOUTHEAST</b>						<b>FAR WEST</b>						
<b>South Carolina</b>			<b>Georgia</b>			<b>Arizona *</b>			<b>California *</b>			
22s	36s	50s	22s	36s	50s	22s	36s	50s	22s	36s	50s	50s
7.04	7.04	7.04	7.97	7.97	7.97	7.99	7.99	7.99	7.62	7.62	7.62	7.62
22.2	35.4	49.7	22.9	36.1	50.2	22.1	36.8	50.2	22.2	35.5	48.9	
2.0	1.6	1.2	1.3	1.3	1.5	1.3	1.3	2.1	1.1	1.4	1.9	
2252	2029	1809	2000	1820	1468	2206	2002	1762	2300	2024	1743	
4.3	3.7	6.1	5.4	4.6	7.3	4.2	4.9	6.3	4.0	3.9	6.4	
6.4	5.0	4.9	5.3	5.0	4.7	6.0	5.0	4.5	6.1	5.0	4.9	
134	133	115	119	110	104	124	121	113	149	135	128	
10.9	14.1	18.1	10.0	12.8	17.4	11.3	14.5	16.9	13.7	13.0	20.4	
3.60	2.18	1.36	3.18	1.80	1.23	3.33	1.99	1.33	3.83	2.22	1.40	
6.68	5.87	5.11	5.96	5.27	5.00	6.37	5.57	5.18	6.27	5.84	5.05	
11.8	12.4	14.1	10.0	12.9	14.5	10.8	13.1	14.7	13.1	12.6	16.7	
0.97	0.54	0.31	0.79	0.42	0.28	0.89	0.51	0.30	1.02	0.54	0.35	
16.4	20.1	24.8	14.0	19.5	24.7	15.2	19.6	23.1	19.9	18.2	23.2	
22.8	26.4	28.9	23.3	28.7	30.2	23.4	29.0	31.1	23.5	27.5	28.8	
1859	2844	3493	2055	3465	3780	2074	3590	3936	2122	3227	3465	
513	1295	2027	568	2051	2413	603	2060	2352	481	1067	1632	
422	1002	1587	309	1437	2004	299	1493	2053	567	1507	2175	
80	70	60	90	70	60	70	70	60	90	60	60	

**OPENING & CARDING WASTE (%)****YARN SKEIN STRENGTH TEST:**

Yarn Number (Ne)  
 CV% of Yarn Number  
 Count-Strength-Product  
 CV% of CSP  
 Elongation (%)

**SINGLE-YARN STRENGTH TEST:**

Tenacity (mN/tex)  
 CV% of Tenacity  
 Force (N)  
 Elongation (%)  
 CV% of Elongation  
 Specific Work to Rupture (cm\*N)  
 CV% of Specific Work to Rupture

**USTER YARN EVENNESS TEST:**

Non-Uniformity (CV%)  
 Thick Places/1,000 yd  
 Thin Places/1,000 yd  
 Neps/1,000 yd

**YARN APPEARANCE INDEX**

\* Cotton stuck to processing rolls (card and roving).



PIMA S-7	
FAR WEST	
Arizona	California
<b>CLASSIFICATION</b> Classer's Grade (code) HVI Staple (code)  <b>HVI - SPINLAB</b> UHM (in) Uniformity Index (%) Strength (g/tex) Elongation (%) Micronaire (rdg) Color Rd (%) Color +b (units)	2 46  1.33 86.8 44.5 - 3.9 64.1 12.3
<b>STELOMETER</b> 1/8" - Gage Strength (g/tex)* Elongation (%)  <b>SUTER-WEBB LENGTH ARRAY</b> UQL (in) Mean Length (in) CV (%) Short Fiber Content (%)  <b>IIC/SHIRLEY FMT</b> Fineness (mtex) Maturity Ratio  <b>S. A. NON-LINT CONTENT</b> Visible Waste (%) Total Waste (%)  <b>NEPS OF RAW COTTON</b> AFIS-N (neps/gram) Raw Stock Neps (neps/100 sq. in.)  <b>SUGAR CONTENT (%)</b>	40.2 6.1  1.54 1.27 28.6 5.0  140.0 1.119  1.9 3.1  100 27  0.24
	42.7 6.3  1.53 1.28 27.0 4.2  134.8 1.085  2.1 3.2  99 18  0.23

\*Stelometer results adjusted to Pressley level.

	PIMA S-7					
	FAR WEST			California *		
	Arizona					
	22s	36s	50s	22s	36s	50s
<b>OPENING &amp; CARDING WASTE (%):</b>	7.17	7.17	7.17	5.71	5.71	5.71
<b>COMBING WASTE(%):</b>	16.54	16.54	16.54	15.57	15.57	15.57
<b>YARN SKEIN STRENGTH TEST:</b>						
Yarn Number (Ne)	23.3	36.1	50.5	22.4	36.1	50.7
CV% of Yarn Number	2.6	2.8	1.8	1.9	2.0	2.8
Count-Strength-Product	4416	4015	3861	4522	3975	3860
CV% of CSP	1.9	2.8	3.9	3.6	4.9	4.4
Elongation (%)	6.5	5.4	5.2	7.0	5.5	5.4
<b>SINGLE-YARN STRENGTH TEST:</b>						
Tenacity (mN/tex)	243	244	231	260	242	228
CV% of Tenacity	8.8	10.0	11.7	8.7	11.5	11.8
Force (N)	6.52	3.99	2.73	6.97	3.97	2.70
Elongation (%)	6.49	6.12	5.67	6.96	6.21	5.70
CV% of Elongation	8.2	9.1	7.6	13.2	8.7	7.3
Specific Work to Rupture (cm*N)	1.65	0.93	0.63	1.74	0.93	0.60
CV% of Specific Work to Rupture	11.3	13.9	15.0	12.8	15.3	15.6
<b>USTER YARN EVENNESS TEST:</b>						
Non-Uniformity (CV%)	11.5	15.4	21.0	11.3	14.4	16.8
Thick Places/1,000 yd	18	163	778	17	100	266
Thin Places/1,000 yd	0	96	864	2	16	113
Neps/1,000 yd	10	69	189	7	43	112
<b>YARN APPEARANCE INDEX</b>	130	120	100	130	120	110

\* Cotton stuck to processing rolls (card and roving).

Standard Machine Settings and Specifications for Processing Specified Groups of Cotton.

Process	U.S. UPLAND	U.S. UPLAND (COMBED)	AMERICAN PIMA
<b>CARD</b>			
Standard Atmospheric Conditions			
Temperature (degrees F.) .....	75	75	75
Relative Humidity (pct.).....	55	55	55
Sliver Delivered (gr./yd.).....	60	60	60
Production Rate Per Hour (lbs.).....	70	70	70
Doffer Speed (r.p.m.) .....	42	42	42
Cylinder Speed (r.p.m.).....	365	365	365
Flat Speed (r.p.m.).....	8.5	8.5	8.5
Licker-In Speed (in. / min.).....	942	942	942
<b>Settings:</b>			
Feed Plate to Licker-In (in.).....	.008	.008	.008
Mote Knife to Licker-In (in.).....	.012	.012	.012
Licker-In Screen to Cylinder (in.).....	.007	.007	.007
Back Cylinder Screen , Top (in.).....	.023	.023	.023
Back Cylinder Screen , Bottom (in.).....	.038	.038	.038
Front Cylinder Screen , Top (in.).....	.120	.120	.120
Front Cylinder Screen , Bottom (in.).....	.036	.036	.036
Flats, Back (in.).....	.012	.012	.012
Flats, Mid (in.).....	.010	.010	.010
Flats, Front (in.).....	.009	.009	.009
Flats Stationary Back (3) (in.).....	.010	.010	.010
Flats Stationary Front (3) (in.).....	.010	.010	.010
Front Knife, Top (in.).....	.010	.010	.010
Front Knife, Bottom (in.).....	.010	.010	.010
Back Knife (in.).....	.050	.050	.050
Top Front Plate to Cylinder (in.).....	.040	.040	.040
Doffer to Cylinder (in.).....	.004	.004	.004
Doffer to Stripper Roll (in.).....	.005	.005	.005
Stripper to Crush Rolls (in.).....	.008	.008	.008
Crusher Roll Pressure (lbs.).....	112	112	112



Process	U.S. Upland	U.S. Upland (Combed)	American Pima
<b>Standard Atmospheric Conditions</b>			
Temperature (degrees F.) .....	75	75	75
Relative Humidity (pct.) .....	55	55	55
<b>Sliver Lapper (Combed Only)</b>			
Sliver Fed, 20 Each. (gr./yd.) .....	-	42	42
Lap Delivered (gr./yd.) .....	-	808	808
Speed (yd./min.) .....	-	46	46
<b>Comber (Model 52)</b>			
Sliver Delivered (gr./yd.) .....	-	50	40
Production Per Hour (lbs.) .....	-	22	22
Nominal Waste (pct.) .....	-	16 to 17	16 to 17
<b>Breaker Drawing Frame (3 over 3)</b>			
Sliver Fed (6 Each) (gr. /yd.) .....	60	60	60
Sliver Delivered (gr. /yd.) .....	53	53	53
Roll Settings:			
First to Second (mm.) .....	36	36	39
Second to Third (mm.) .....	40	40	42
Speed (meters / min.) .....	350	350	350
<b>Finisher Drawing Frame (3 over 4)</b>			
Sliver Fed (8 Each) (gr. /yd.) .....	53	53	53
Sliver Delivered (gr. /yd.) .....	55	55	55
Roll Settings:			
First to Third (in.) .....	2-9/16	2-9/16	2-5/8
Third to Fourth (in.) .....	1-1/2	1-1/2	1-7/8
Speed (feet / min.) .....	524	315	315

Standard Machine Settings and Specifications for Processing Specified Groups of Cotton.

Process	U.S. Upland	U.S. Upland (Combed)	American Pima
<b>Long Draft Roving (10 X 5, 1-Apron Type)</b>			
Standard Atmospheric Conditions:			
Temperature (degrees F.) .....	75	75	75
Relative Humidity (pct.) .....	60	60	60
Sliver Fed (gr. / yd.) .....	55	55	55
Roving Delivered (hank) .....	0.80, 1.00, 1.25	0.80, 1.00, 1.25	0.80, 1.00, 1.25
Roll Settings:			
First to Second (in.) .....	2-3/32	2-3/32	2-1/4
Second to Third (in.) .....	1-1/2	1-1/2	2
Spindle Speed (r.p.m.) .....	900	900	900
<b>Long Draft Spinning (2-Apron Type)</b>			
Standard Atmospheric Conditions:			
Temperature (degrees F.) .....	75	75	75
Relative Humidity (pct.) .....	65	65	65
Twist Multiplier (no.) .....	4.00	4.00	4.00
Carded Yarns (no.) .....	22, 36, 50	-	-
Combed Yarns (no.) .....	-	22, 36, 50	22, 36, 50
Roll Settings:			
First to Second (in.) .....	1-11/16	1-11/16	1-11/16
Second to Third (in.) .....	1-13/16	1-13/16	2
Spindle Speed (r.p.m.) .....	11,000	11,000	11,000
<b>Open-End Spinning</b>			
Standard Atmospheric Conditions:			
Temperature (degrees F.) .....	75	-	-
Relative Humidity (pct.) .....	65	-	-
Sliver Fed (gr. / yd.) .....	55	-	-
Twist Multiplier (no.) .....	4.80	-	-
Carded Yarns (no.) .....	10, 22, 30	-	-
Rotor Speed (r.p.m.) .....	90,000	-	-
Rotor Diameter (mm.) .....	T33	-	-
Opening Roll Speed (r.p.m.) .....	7,500	-	-

## OUTLINE OF MECHANICAL PROCESSES







